



STRAIGHT LINE DIAGRAMS

WITH SUPERELEVATION AND DESIGN SPEED

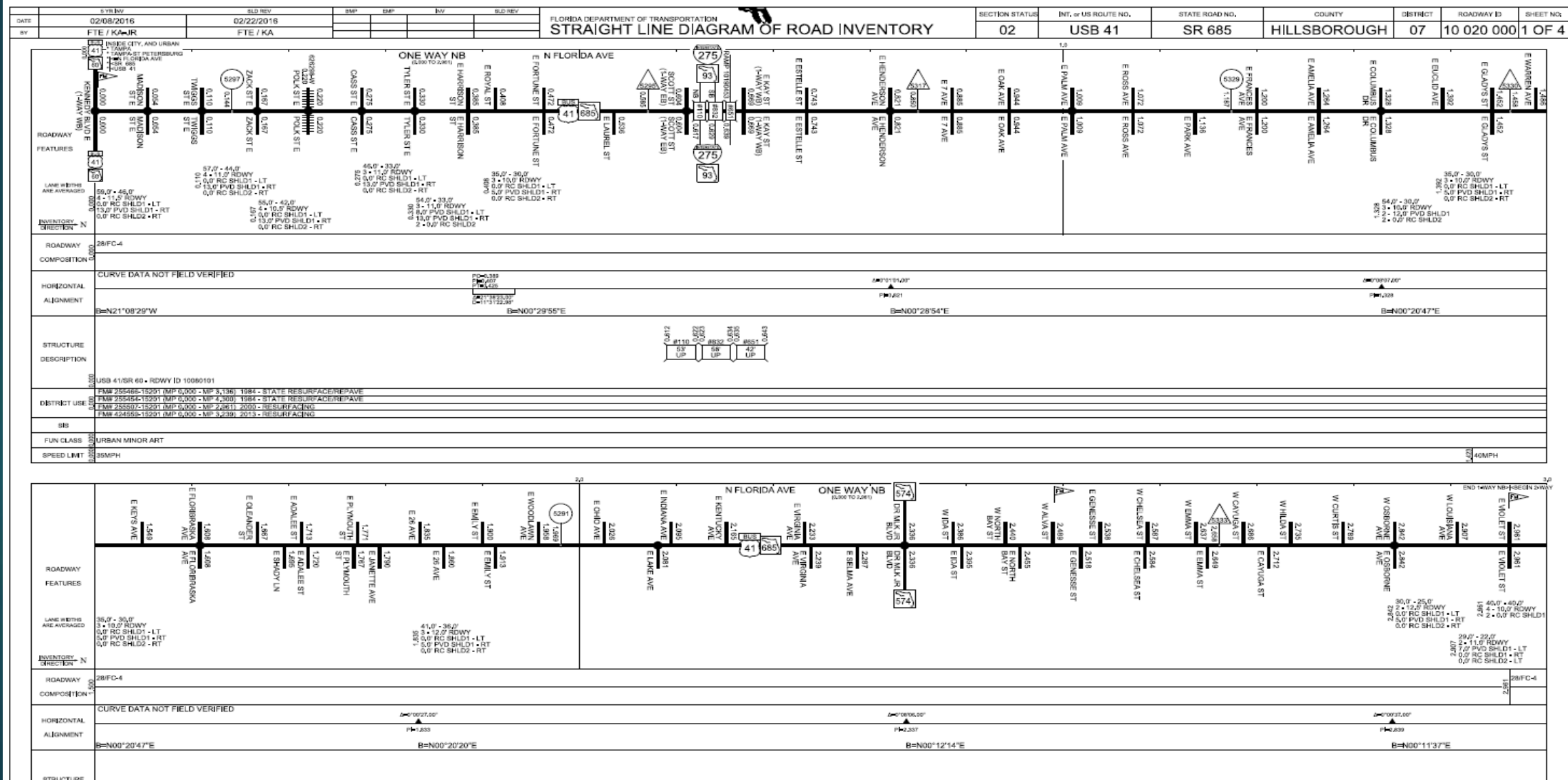
Roadway Design Process

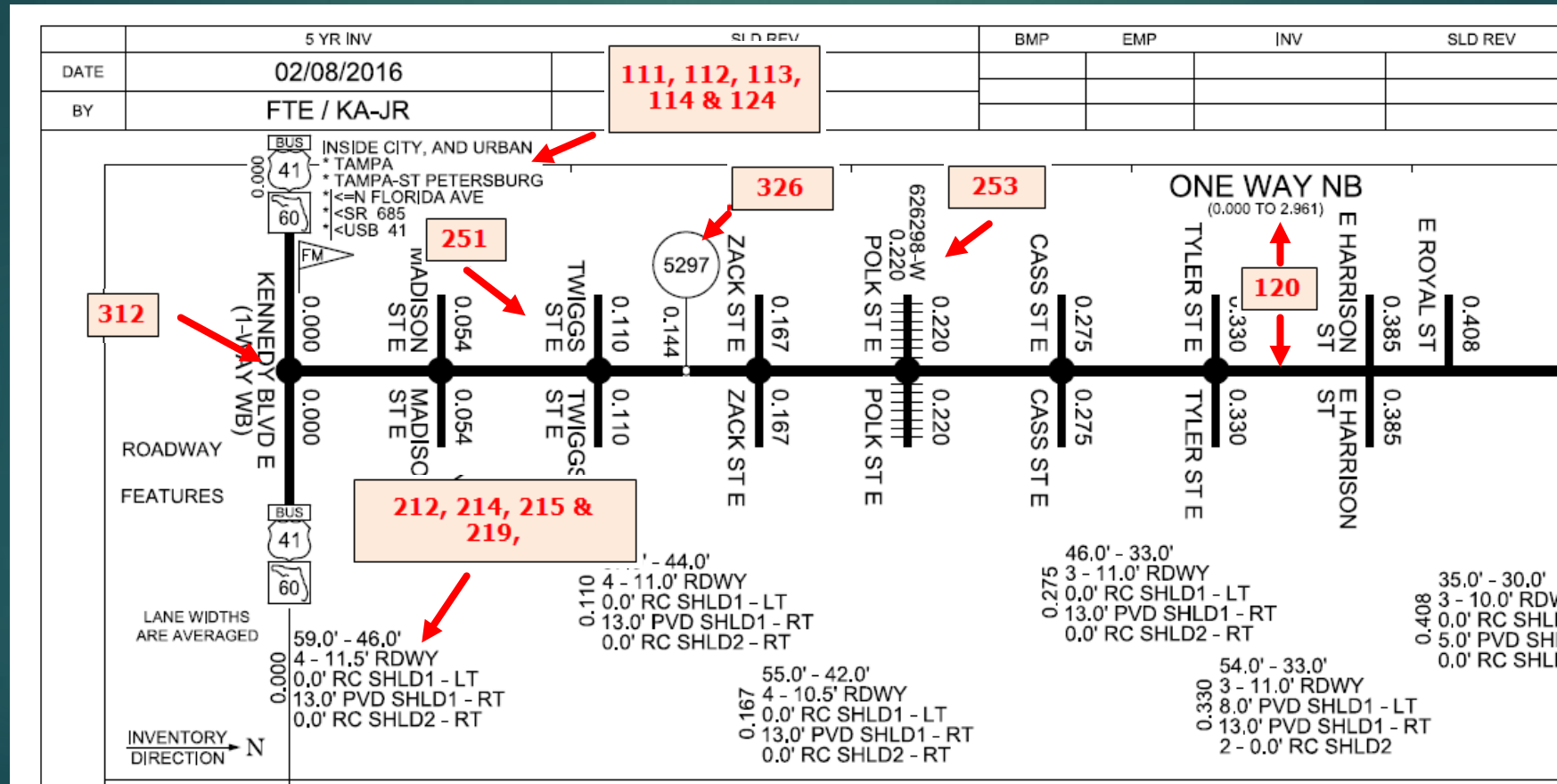
- ▶ The Roadway Designer must establish what are the features of the existing roadway such as the superelevation of any horizontal curve.
- ▶ The Designer must determine the Design Speed which is the principle controlling element for determination of all additional design criteria.
- ▶ By having the Horizontal Curve Superelevation values and Design Speed included in the SLDs, this cuts down on time consumed on searching for as-builts and/or design documentation from previous projects.

WHAT, WHERE & HOW

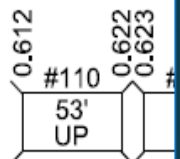
- ▶ What are the features on the SLDs that are uploaded from the RCI database that is associated with the data being used?
- ▶ Where is this data located on the SLD?
- ▶ How is it being gathered?
- ▶ How is it displayed on the SLD?

Current D7 Straight Line Diagram (SLD)





FEATURES WHAT & WHERE

ROADWAY	28/FC-4	232	
COMPOSITION	0.000		
HORIZONTAL	CURVE DATA NOT FIELD VERIFIED		
ALIGNMENT	220 & 221		PC=0.389 PI=0.407 PT=0.425 Δ=21°38'23.00" D=11°31'22.98" B=N21°08'29"W B=N00°29'55"E
STRUCTURE	258		
DESCRIPTION	0.000		USB 41/SR 60 - RDWY ID 10080101 
DISTRICT USE	0.000		FM# 255466-15201 (MP 0.000 - MP 3.136) 1984 - STATE RESURFACE/REPAVE FM# 255454-15201 (MP 0.000 - MP 4.300) 1984 - STATE RESURFACE/REPAVE FM# 255507-15201 (MP 0.000 - MP 2.961) 2000 - RESURFACING FM# 424559-15201 (MP 0.000 - MP 3.239) 2013 - RESURFACING
SIS	147		
FUN CLASS	0.000	URBAN MINOR ART	121
SPEED LIMIT	0.000	35MPH	311

DESIGN SPEED

- Typical Section Package. Usually available around 30% submittal and includes the posted speed limit.

(Posted Speed is approved by the Traffic Operation Engineer
Design speed is approved the District Design Engineer.)

- Construction Plans

FEATURE 311

- ▶ This is a Traffic Operations feature. A new characteristic should be added to feature 311 for the design speed.

SLD with Curve Data

Roadway ID: [10020000](#) **Man-Dist:** 07 **Geo-Dist:** 07 **County:** HILLSBOROUGH **Beg. MP:** 0.000 **End. MP:** 11.211 **Net Length:** 11.211 **Overall Status:** ACTIVE ON THE SHS
Description: SR-685/BUS.US41 [VideoLog](#) [Enterprise GIS](#)

Feature 220 - NON CURVE INTERSECTION POINT

Beg. MP	End. MP	Characteristic	Value	Unit	Side	Offset	POINT/NON-INTERLOCKING Char. Updated
0.821		NONCURVE PT OF INTERSECTION	000D01'01.00"	DE	C	L	RCICNVRT 04/26/1999
1.328		NONCURVE PT OF INTERSECTION	000D08'07.00"	DE	C	L	RCICNVRT 04/26/1999
1.833		NONCURVE PT OF INTERSECTION	000D00'27.00"	DE	C	L	RCICNVRT 04/26/1999
2.337		NONCURVE PT OF INTERSECTION	000D08'06.00"	DE	C	L	RCICNVRT 04/26/1999
2.839		NONCURVE PT OF INTERSECTION	000D00'37.00"	DE	C	L	RCICNVRT 04/26/1999
3.348		NONCURVE PT OF INTERSECTION	000D00'26.00"	DE	C	R	RCICNVRT 08/11/1999
5.337		NONCURVE PT OF INTERSECTION	000D14'06.00"	DE	C	R	RCICNVRT 08/11/1999

HORIZONTAL	CURVE DATA NOT FIELD VERIFIED	PC=0.389 PI=0.407 PT=0.425	$\Delta=0^{\circ}01'01.00"$
ALIGNMENT		$\Delta=21^{\circ}38'23.00"$ $D=11^{\circ}31'22.98"$	PI=0.821
	R=N21°08'29"W	R=N00°29'55"E	R=N00°28'54"E

STRUCTURE DESCRIPTION	0.000 USB 41/SR 60 - RDWY ID 10080101	
DISTRICT USE	0.000	FM# 255466-15201 (MP 0.000 - MP 3.136) 1984 - STATE RESURFACE/REPAVE FM# 255454-15201 (MP 0.000 - MP 4.300) 1984 - STATE RESURFACE/REPAVE FM# 255507-15201 (MP 0.000 - MP 2.961) 2000 - RESURFACING FM# 424559-15201 (MP 0.000 - MP 3.239) 2013 - RESURFACING
SIS		
FUN CLASS	0.000	URBAN MINOR ART
SPEED LIMIT	0.000	35MPH

FEATURE 220 DESCRIPTION

Non Curve Intersection Point - Feature 220

RCI Features & Characteristics Handbook

Owning Office: Planning TranStat

NCPTINT

Non Curve Point of Intersection

Roadside: C/R/L Feature Type: Point

Definition/Background: Denotes the intersection point without point of curvature or point of tangent, to accommodate minor survey changes, a change in the direction of the roadway, or 90° turns, right or left, at an intersecting roadway.

Responsible Party for Data Collection: District Planning

Required For: All functionally classified roadways on the SHS

Who/What uses this Information: Central Planning, District Planning

Important When Gathering: This is a point feature; therefore, it only has a single milepoint. When inventorying make note of the offset, e.g. left or right. This information may be obtained from construction plans.

How to Gather this Data: In office – Refer to most recent construction plans. Enter in degrees/minutes/seconds. Refer to coding box.

Offset direction: 2-right, 3-left

Special Situations: Non-curve data must be coded for left and right side when coding divided roadways.

Value for Non Curve Point of Intersection: 13 Bytes: XXXDXX'XX.00" – Degrees/minutes/seconds

Enter using the following format:

			D			'			.	0	0	"	Format
1	2	3	4	5	6	7	8	9	10	11	12	13	Position

Below are descriptions for the byte positions:

1-3 number of degrees

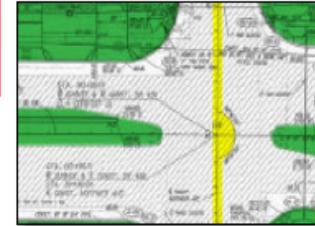
4 D for degrees

5, 6 minutes

7 single quote (') for minutes

8, 9 seconds

10-13 .00"



SLD with Curve Data

ROADWAY

FEATURES

LANE WIDTHS ARE AVERAGED

INVENTORY DIRECTION

ROADWAY COMPOSITION

HORIZONTAL ALIGNMENT

STRUCTURE DESCRIPTION

DISTRICT USE

SIS

FUN CLASS

SPEED LIMIT

0.000

0.054

0.110

0.167

0.220

0.275

0.330

0.385

0.472

0.536

0.604

0.617

0.629

0.639

0.669

0.743

0.821

0.903

MADISON ST

TWIGG ST

ZACKS ST

POLK ST

CASS ST

TYLER ST

E HARRIS ST

E FORT ST

E LAUR ST

SCOTT ST (1-WAY)

E KAY ST (1-WAY)

E ESTE ST

E HENDON AVE

E 7 AVE

41

685

Roadway ID: [10020000](#)

Man-Dist: 07

Geo-Dist: 07

County: HILLSBOROUGH

Beg. MP: 0.000

End. MP: 11.211

Net Length: 11.211

Overall Status: ACTIVE ON THE SHS

Description: SR-685/BUS.US41

[VideoLog](#)

[Enterprise GIS](#)

Validate

Show Details

Previous

Next

Feature 221 - HORIZONTAL CURVE

LENGTH/INTERLOCKING

Beg. MP	End. MP	Characteristic	Value	Unit	Side	Offset	Char. Updated
0.000	0.389	COMPASS BEARING	N21D08'29"W	DE	C		RCICNVRT 08/11/1999
0.389	0.425	HORIZONTAL CURVE CENTRAL ANGLE	021D38'23.00"	DE	C	R	RCICNVRT 04/03/2000
		HORIZONTAL DEGREE OF CURVE	011D31'22.98"	DE	C	R	RCICNVRT 02/09/2001
		HORIZONTAL PT. OF INTERSECTION	0.407	MI	C		RCICNVRT 04/26/1999
0.425	0.821	COMPASS BEARING	N00D29'55"E	DE	C		RCICNVRT 08/11/1999
0.821	1.328	COMPASS BEARING	N00D28'54"E	DE	C		RCICNVRT 08/11/1999
1.328	1.833	COMPASS BEARING	N00D20'47"E	DE	C		RCICNVRT 08/11/1999
1.833	2.337	COMPASS BEARING	N00D20'20"E	DE	C		RCICNVRT 08/11/1999
2.337	2.839	COMPASS BEARING	N00D12'14"E	DE	C		RCICNVRT 08/11/1999
2.839	3.348	COMPASS BEARING	N00D11'37"E	DE	C		RCICNVRT 08/11/1999
3.348	5.337	COMPASS BEARING	N00D12'03"E	DE	C		RCICNVRT 08/11/1999
5.337	5.840	COMPASS BEARING	N00D26'09"E	DE	C		RCICNVRT 08/11/1999
5.840	6.343	COMPASS BEARING	N00D27'12"E	DE	C		RCICNVRT 08/11/1999
6.343	6.617	COMPASS BEARING	N00D27'00"E	DE	C		RCICNVRT 08/11/1999
6.617	6.875	COMPASS BEARING	N00D27'21"E	DE	C		RCICNVRT 08/11/1999
6.875	7.381	COMPASS BEARING	N00D27'04"E	DE	C		RCICNVRT 08/11/1999
7.381	7.885	COMPASS BEARING	N00D22'14"E	DE	C		RCICNVRT 08/11/1999

2.0

FEATURE 221

RCI FEATURES & CHARACTERISTICS HANDBOOK

COMPASS BEARING

HORIZONTAL CURVE

HORIZONTAL DEGREE OF CURVE

RCI Features & Characteristics Handbook
Horizontal Curve - Feature 221
Owning Office: Planning Trans

BEARING	Compass Bearing
Roadside: C/R/L	Feature Type: Length
Interlocking: Yes	

Definition/Background: Represents a directional line segment of the roadway showing the degree of curvature of the roadway and bearing changes effected by curves in the roadway and/or horizontal shifts in the roadway.

Responsible Party for Data Collection: District Planning

Required For: All functionally classified roadways on the SHS

Who/What uses this Information: Safety, Central Planning, District Planning

How to Gather this Data: In office – Refer to construction plans or survey field book.

Enter N or S, the degrees/minutes/seconds, and the direction of deviation. Determine the angle deviation from north or so and the direction of the deviation.

Code using the described format. For example, a roadway heading 29 degrees in an eastward direction from north would be a deviation description of "N 29° E," and a roadway 35 degrees from south in a westward direction would be "S 35° W."

Value for Compass Bearing: 11 Bytes: XXXDXX'00"X – Record curve degrees/minutes/seconds

Enter using the following format:

		D		'	0	"	Format
1	2	3	4	5	6	7	8
9	10	11	Position				

Below are descriptions for the byte positions:

- 1 N (north) or S (south)
- 2, 3 the number of degrees the roadway turns
- 4 D for degrees
- 5, 6 minutes of the curve
- 7 single quote (') for minutes
- 8, 9 seconds of the curve
- 10 double quote (") for seconds
- 11 direction in which the curve is traveling: E (east) or W (west)

RCI Features & Characteristics Handbook
Horizontal Curve - Feature 221
Owning Office: Planning Trans

HRZCANG	Horizontal Curve Central Angle
Roadside: C/R/L	Feature Type: Length
Interlocking: Yes	

Definition/Background: Denotes the roadway segment's central curve angle. Also commonly referred to as the delta (Δ).

PI – Point of Intersection. The point where the back and forward tangents intersect.

Central Angle – Angle formed by two radii drawn from the center of the circle to the PC and PT. Also referred to as the Δ .

Responsible Party for Data Collection: District Planning

Required For: All functionally classified roadways on the SHS

Who/What uses this Information: Safety, Central Planning, District Planning

How to Gather this Data: In office – Refer to construction plans or survey field book. Enter degrees/minutes/seconds. Refer to coding box.

Offset direction: 1-right and left, 2-right, 3-left

Value for Horizontal Curve Central Angle: 13 Bytes: XXXDXX'XX.00" – Record angle according to degrees/minutes/seconds/hundredths of a second

Enter using the following format:

		D		'		"	Format
1	2	3	4	5	6	7	8
9	10	11	12	13	Position		

Below are descriptions for the byte positions:

- 1-3 will be the number of degrees of the angle (zero fill degrees; e.g., 005 for 5 degrees)
- 4 will always be D for degrees
- 5, 6 will be the minutes of the curve
- 7 will always be a single quote (') for minutes
- 8, 9 will be the seconds of the curve
- 10-12 will always be .00 (optional – may be removed)
- 13 will always be a double quote (") for seconds

CURVE DATA	
PI STA	= 406+00.58
DELTA	= 18° 02' 46" (RT)
D	= 1° 30' 00"
T	= 606.56'
L	= 1,203.07'
R	= 3,819.72'
PC STA	= 399+94.03
PT STA	= 411+97.10

RCI Features & Characteristics Handbook
Horizontal Curve - Feature 221
Owning Office: Planning Trans

HRZDGRV	Horizontal Degree of Curve
Roadside: C/R/L	Feature Type: Length
Interlocking: Yes	

Definition/Background: Denotes the degree of curvature per 100 feet. Sometimes referred to as the D value of the curve.

The horizontal degree of curve is used to calculate the CURCLASx (x = A-F) in Feature 118 (HPMS).

The degree of curvature is measured by the angle subtended at the center by an arc 100 feet long.

Small D values represent flat curves with large radii, and large D values represent sharp curves with small radii. In general, D values larger than 20° are rare.

Responsible Party for Data Collection: District Planning

Required For: All functionally classified roadways on the SHS

Who/What uses this Information: Safety, Central Planning, District Planning

How to Gather this Data: In office – Refer to construction plans or survey field book.

Offset direction: 1-right and left, 2-right, 3-left

Enter degrees/minutes. Refer to coding box. The horizontal degree of curve should be coded for both sides of the roadway for all divided roadways that have different alignments.

Value for Horizontal Degree of Curve: 7 Bytes: XXXDXX' – Record degrees/minutes

Enter using the following format:

		D		'	Format
1	2	3	4	5	6
7	Position				

Below are descriptions for the byte positions:

- 1-3 will be the number of degrees the roadway turns
- 4 will always be D for degrees
- 5, 6 will be the minutes of the curve
- 7 will always be a single quote (') for minutes

CURVE DATA	
PI STA	= 406+00.58
DELTA	= 18° 02' 46" (RT)
D	= 1° 30' 00"
T	= 606.56'
L	= 1,203.07'
R	= 3,819.72'
PC STA	= 399+94.03
PT STA	= 411+97.10

SUPERELEVATION

- For new roadway construction and reconstruct project.
- This information can be found in construction plans on the Roadway Profile sheets.

Question?

How do we show this in the RCI database and on the SLD?